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1. Title of the Invention

Oral composition

2. Scope of the Claims

1. An oral composition, which is formed by adding a propellant vaporizing at atmospheric temperature and pressure to a paste comprising, as main components, an abrasive, a bond, a thickener, an activator and water, and having a viscosity of 20 to 400 poise, and then filling the obtained mixture into an aerosol container,

characterized in that said paste foams when it is sprayed from the aerosol container.

2. The oral composition according to claim 1, wherein the foaming magnification of the paste is 1.5 to 6 times its volume, when the paste is sprayed from the aerosol container.

3. The oral composition according to claim 1 or 2, wherein the propellant has a boiling point between -120°C and 5°C.

4. The oral composition according to claim 3, wherein the propellant is carbon dioxide.

5. The oral composition according to claim 3, wherein the propellant is hydrocarbon.

6. The oral composition according to any one of claims 1 to 5, wherein 10% by weight to 45% by weight of the abrasive, 0.2% by weight to 5% by weight of the bond, 5% by weight to 30% by weight of the thickener, and 0.5% by weight to 5% by weight of the activator are mixed into the total weight of the paste.

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The paste constituting the oral composition of the present invention comprises, as main components, an abrasive, a bond, a thickener, an activator and water. One or more compounds selected from the following group are used as abrasives: potassium carbonate, magnesium carbonate, dibasic calcium phosphate dihydrate, dibasic calcium phosphate anhydrous, tribasic calcium phosphate, insoluble sodium metaphosphate, amorphous silica, crystalline silica, aluminum oxide, and aluminum hydroxide.

In terms of the viscosity of a paste, the shape-keeping ability of a foaming paste formed by foaming the above paste, and the provision of a constant polishing action, these abrasives are contained in the paste preferably at a weight ratio of 10% to 45% (% by weight, and so on) based on the total weight of the paste. In particular, when the liquid absorption of abrasives used is 0.5 to 1 ml/2 g, the abrasives are contained in the paste preferably at a weight ratio of 25% to 45%. When the liquid absorption of abrasives used is 1 to 2 ml/2 g, the abrasives are contained in the paste preferably at a weight ratio of 20% to 30%, and when the liquid absorption of abrasives used is 2 ml/2 g or more, the abrasives are contained in the paste preferably at a weight ratio of 10% to 25%.

In addition, one or more items selected from the following group are used as bonds: polyvinyl alcohol, methylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, alginate, carrageenan, gum Arabic, gelatin, carboxymethylcellulose, polyvinylpyrrolidone, microorganism gum, gum traganth, Locust bean gum, and acrylate. In order that the paste has a low viscosity and

provides a good bonding action, it is particularly preferable to use a bond having a viscosity of 10 to 250 centipoise in 1% aqueous solution.

These bonds are mixed into the paste preferably in the range between 0.2% and 5%. By mixing the bonds in the above range, the paste with a low viscosity can be formed, and further, it betters liquid separation and an ability to keep the shape.

As a thickener, polyethylene glycol, sorbitol, glycerin, propylene glycol, mannite, xylitol or the like can be used. In terms of the provision of a good moisture retention, such a thickener is contained in the paste preferably at a weight ratio of 5% to 30%.

As an activator, a common activator used for toothpaste, such as anionic, cationic, nonionic or amphoteric activator can be used. Specific examples of such an activator may include sodium lauryl sulfate, sodium dodecylbenzenesulfonate, sodium hydrogenated coconut fatty acid monoglyceride monosulfate, sodium lauryl sulfoacetate, sodium N-lauroyl sarcosinate, and N-acyl glutamate. These activators are contained in the paste preferably at a weight ratio of 0.5% to 5%.

In the present invention, in addition to the above described activator, a higher fatty acid soap such as a stearic acid soap, fatty acid ethanol amide, or other nonionic activators may also be mixed into the paste as a foam stabilizer. By mixing these foam stabilizers, the foaming of the paste can be prolonged. Moreover, in order to make the dimension of each bubble from the foaming paste uniform, polyether denatured silicon or the like may also be mixed into the paste as a foam-forming agent. In this case, the above foam stabilizer is mixed into the paste preferably at a weight ratio of 20% to 150% based on the total weight, and the above foam-forming agent is mixed into the

paste preferably at a weight ratio of 5% to 55% based on the total weight.

Furthermore, sweeteners such as saccharin or stevioside, aroma chemicals, or antiseptics may also be mixed into the paste. Still further, active ingredients such as lysozyme chloride, dextranase, lytic enzyme, mutanase, chlorhexidine, sorbic acid, alexidine, hinokitiol, cetylpyridinium, alkylglycine, alkyldiaminoethylglycine salt, sodium monofluorophosphate, sodium fluoride, water soluble monobasic or dibasic phosphate, quarternary ammonium compound, or sodium chloride, may also be mixed into the paste. In particular, in the case of the present invention, since the oral composition is spread extremely favorably in the mouth even when it is used as a toothpaste, the mixing of these active ingredients is effective. Still further, an astringent, or a bad breath-preventing agent such as a chlorophylline compound may also be added, as necessary.

In the present invention, the above described appropriate ingredients are added to water, and the mixture is kneaded, followed by deaeration if necessary, so as to produce a paste. Thereafter, a propellant vaporizing at atmospheric temperature and pressure is added to the obtained paste, whereby the paste is aerosolized. The mixture is then filled in an aerosol container. In this case, propellants having a boiling point between -120 and 5°C are preferably used. Examples of such a propellant may include fluorohydrocarbons such as CFC 12, 22 or C, chlorinated hydrocarbons such as methyl chloride, hydrocarbons such as propane, ethers such as dimethyl ether, and compressed gas such as nitrogen, nitrous oxide or carbon dioxide. In terms of safety, carbon dioxide is particularly preferable.

Thus, in the present invention, the above described paste is filled into an aerosol container together with the above described propellant, and the valve of the aerosol container is operated for the use, so that the above paste is sprayed and converted into a foaming paste. In the present invention, the above paste containing, as main components, an abrasive, a bond, a thickener, an activator and water is required to have a viscosity of 20 to 400 poise. This is to say, a paste having a viscosity of 20 to 400 poise is foamed, so as to improve dispersibility of the thus formed foaming paste, to provide softness and good feeing in the mouth, and to improve the usability. In addition, the foaming paste can have an ability to moderately keep its shape on a tooth brush, so that it neither loses its shape nor runs off. It can also have good dispersibility in water, so that gargle water can easily be produced therefrom. In contrast, when the viscosity of the paste is set at higher than 400 poise, and in particular, when the viscosity of the paste is set at higher than 500 poise, which is the viscosity of the conventional tooth paste, it does not become a good foaming paste, and the usability is deteriorated. In addition, because of its poor dispersibility in water, it cannot be used as gargle water. Thus, the object of the present invention cannot be achieved. When the viscosity of the paste is set at lower than 20 poise, it may have poor stability and may cause deposition when the paste and the propellant are filled in a container. Moreover, the foaming paste has a poor shape-keeping ability, and the usability is also bad. It is therefore not preferable. When a paste having a viscosity of 20 to 400 poise is produced, the above components such as an abrasive, a bond, a thickener and an activator are preferably added within the above described mixing range. By adopting such a mixing range, the paste can be formed such

that it reliably has the above described viscosity range. Moreover, when the foaming paste is used as a tooth paste or gargle water, its availability, usability, effects of washing the oral cavity can be improved.

When the above paste and the above propellant are filled in a container and the obtained oral composition is then taken out by foaming, the above paste is expanded. In this case, it is preferable to make the paste foam and expand to 1.5 to 6 times its original volume. Thus, a good foaming paste can be formed. Accordingly, the above propellant is preferably filled in an aerosol container such that it makes the paste foam and expand to 1.5 to 6 times its original volume. When the expansion rate is smaller than 1.5 times, even if the viscosity of the paste is set at 20 to 400 poise, the usability of the formed foaming paste is the same as the usability of the conventional toothpaste. In addition, the ability to keep its shape is poor, and therefore it is not preferable as a toothpaste. Moreover, since the dispersibility in water is also poor, it becomes difficult to use as gargle water. In contrast, if the expansion rate is greater than 6 times, the amount of an abrasive in the foaming paste is diluted, and thus, functions as a toothpaste might not be sufficient.

In the present invention, the type of an aerosol container and a method for aerosolization are not particularly limited.

The oral composition of the present invention is usually used as a foaming paste, which is formed by spraying a paste filled in an aerosol container and used as a toothpaste. However, when the oral composition is used as gargle water by necessity, the above foaming paste is placed in a cup or the like, and water is then poured into the cup, whereby the paste is dispersed in the water.

In this case, in the present invention, the viscosity of the paste is set at 20 to 400 poise, a propellant vaporizing at atmospheric temperature and pressure is added to the paste for aerosolization, whereby the paste is foamed when it is sprayed. By this structure, when the foaming paste of the present invention is used as a toothpaste that is applied into the oral cavity, it exerts good functions as a toothpaste and provides excellent tactile sensation (mouthfeel). In addition, the toothpaste is extremely excellent in spreadability and dispersibility in the oral cavity, and also it is soft enough and has excellent usability. Moreover, when the paste is sprayed, it has a good foaming ability, a good shape-keeping ability, and good appearance.

Furthermore, the obtained foaming paste has excellent dispersibility in water. For example, when the foaming paste is placed in a cup, and water is poured therein, the paste is easily dispersed in the water, and its dispersed state is also uniform and good. Thus, it is easily converted into liquid, and so it can easily be used also as gargle water.

According to the present invention, the oral composition can preferably be used not only as a toothpaste, but it can also easily be used as gargle water by being dispersed in water by necessity. Therefore, both a toothpaste and gargle water can be prepared from the product of the present invention, and thus, it is extremely convenient.